

CLAIMS

The following listing of claims lists all of the pending claims, and supersedes all prior listings, and versions, of claims in this application.

LISTING OF CLAIMS:

1. (Canceled)
2. (Previously presented) A method formatting an IP datagram having an IP header containing an identification field comprising:
 - a. determining, in the computing device, identification information having a length greater than 16 bits associated with data to be sent in the IP datagram;
 - b. inserting, in the computing device, at least one bit of the identification information into the identification field of the header;
 - c. inserting, in the computing device, remaining bits of the identification information into at least one other field of the header; and
 - d. transmitting, from the computing device, the IP datagram.
3. (Canceled)
4. (Original) The method of claim 2 wherein the step of inserting the remaining bits of the identification information is carried out by inserting at least one of the remaining bits into a sub-network sub-field of at least one of a source address field and a destination address field of the header.
5. (Original) The method of claim 4 further comprising:
 - d. inserting source address information for the IP datagram into the source address field of the header;
 - e. inserting destination address information for the IP datagram into the destination address field of the header; and

- f. inserting protocol information for the IP datagram into a protocol field of the header.
- 6. (Original) The method of claim 2 wherein the step of inserting the remaining bits of the identification information is carried out by inserting at least one of the remaining bits into a protocol field of the header.
- 7. (Original) The method of claim 6 additionally comprising:
 - d. inserting source address information for the IP datagram into the source address field of the header for the IP datagram;
 - e. inserting destination address information for the IP datagram into the destination address field of the header for the IP datagram; and
 - f. inserting protocol information for the IP datagram into the protocol field of the header for the IP datagram.
- 8. (Original) The method of claim 2 wherein the step of inserting the remaining bits of the identification information is carried out by inserting at least one of the remaining bits into a fragment offset field of the header.
- 9. (Original) The method of claim 8 further comprising:
 - d. inserting source address information for the IP datagram into a source address field of the header;
 - e. inserting destination address information for the IP datagram into a destination address field of the header; and
 - f. inserting protocol information for the IP datagram into a protocol field of the header.
- 10. (Original) The method of claim 2 wherein the step of inserting at least one bit is carried out by inserting 16 bits of the identification information into an identification field of the header.

11. (Previously presented) A method formatting an IP datagram having an IP header comprising:

a. determining, in the computing device, a special value based on a secret shared with a destination node; and

b. inserting, in the computing device, at least a part of the special value into identification information carried by the header for the IP datagram, wherein a first portion of the identification information is included in an identification field of the header and a second portion of the identification information is included in at least one other field of the header, wherein the inserting step is carried out by placing the part of the special value into the identification field.

12. (Original) The method of claim 11 further comprising transmitting the IP datagram.

13. (Original) The method of claim 11 wherein in the determining step the special value is additionally based on at least one element selected from the group consisting of source address information, destination address information and at least one bit from the identification field.

14. (Canceled)

15. (Previously Presented) The method of claim 11 further comprising:

c. inserting at least another part of the special value into the at least one other field of the header.

16. (Previously Presented) The method of claim 11 wherein the part of the special value inserted into the identification field has a bit length less than 16 bits and the method further comprises:

c. determining additional identification information associated with the header for the IP datagram; and

d. inserting at least part of the additional identification information into the identification field of the header for the IP datagram.

17. (Original) The method of claim 16 further comprising:

e. inserting at least another part of the additional identification information into a field of the header for the IP datagram other than the identification field.

18-21. (Canceled)

22. (Previously presented) A method assembling IP datagrams each having an IP header, the method comprising:

- a. receiving, in the computing device, a plurality of the IP datagrams;
- b. extracting, in the computing device, identification information from each of the plurality of the IP datagrams, the identification information for each of the IP datagrams comprising 16 bits of an identification field and at least one bit from at least one other field of the header for that IP datagram, the at least one bit not including source address information, destination address information or protocol information for the IP datagram;
- c. identifying, in the computing device, a subset of the plurality of the IP datagrams based on the identification information and at least one element selected from the group consisting of the source address information, the destination address information and the protocol information for each IP datagram from the subset; and
- d. assembling, in the computing device, the subset of the plurality of the IP datagrams into a message based on fragmentation offset information from a fragmentation offset field of the header for each IP datagram from the subset; and

wherein the at least one other field of the header for that IP datagram is selected from the group consisting of the sub-net subfield of at least one of the source address field and the destination address field of the header for that IP datagram, the protocol field of the header for that IP datagram and the fragmentation offset field of the header for that IP datagram.

23. (Canceled)

24. (Previously presented) A method assembling IP datagrams each having an IP header, the method comprising:

- a. receiving, in the computing device, a plurality of the IP datagrams;
- b. extracting, in the computing device, identification information from each of the plurality of the IP datagrams, the identification information for each of the IP datagrams comprising 16 bits of an identification field and at least one bit from at least one other field of the header for that IP datagram, the at least one bit not including source address information, destination address information or protocol information for the IP datagram;
- c. identifying, in the computing device, a subset of the plurality of the IP datagrams based on the identification information and at least one element selected from the group consisting of the source address information, the destination address information and the protocol information for each IP datagram from the subset;
- d. assembling, in the computing device, the subset of the plurality of the IP datagrams into a message based on fragmentation offset information from a fragmentation offset field of the header for each IP datagram from the subset;
- e. determining, in the computing device, a special value based on a secret shared with a source node; and
- f. identifying, in the computing device, at least one IP datagram from the plurality as part of the subset based on the at least one IP datagram's containing the special value as part of the identification information for the at least one IP datagram.

25. (Original) The method of claim 24 wherein in the determining step the special value is additionally based on at least one element selected from the group consisting of the source address information, the destination address information and at least one bit from the identification field of the header for the at least one IP datagram.

26-28. (Canceled)

29. (Previously Presented) An apparatus for formatting an IP datagram having an IP header comprising:

means for determining identification information having a length greater than 16 bits associated with data to be sent in the IP datagram;

means for inserting at least one bit of the identification information into an identification field of the header for the IP datagram;

means for inserting remaining bits of the identification information into at least one field of the header of the IP datagram other than the identification field; and

means for transmitting the IP datagram.

30. (Canceled)

31. (Original) The apparatus of claim 29 wherein the means for inserting the remaining bits of the identification information insert at least one of the remaining bits into the sub-network sub-field of at least one of the source address field and the destination address field of the header for the IP datagram.

32. (Original) The apparatus of claim 31 further comprising:

means for inserting source address information for the IP datagram into the source address field of the header for the IP datagram;

means for inserting destination address information for the IP datagram into the destination address field of the header for the IP datagram; and

means for inserting protocol information for the IP datagram into the protocol field of the header for the IP datagram.

33. (Original) The apparatus of claim 29 wherein the means for inserting the remaining bits of the identification information insert at least one of the remaining bits into the protocol field of the header for the IP datagram.

34. (Original) The apparatus of claim 33 additionally comprising:

means for inserting source address information for the IP datagram into the source address field of the header for the IP datagram;

means for inserting destination address information for the IP datagram into the destination address field of the header for the IP datagram; and

means for inserting protocol information for the IP datagram into the protocol field of the header for the IP datagram.

35. (Original) The apparatus of claim 29 wherein the means for inserting the remaining bits of the identification information insert at least one of the remaining bits into the fragment offset field of the header for the IP datagram.

36. (Original) The apparatus of claim 35 further comprising:

means for inserting source address information for the IP datagram into the source address field of the header for the IP datagram;

means for inserting destination address information for the IP datagram into the destination address field of the header for the IP datagram; and

means for inserting protocol information for the IP datagram into the protocol field of the header for the IP datagram.

37. (Original) The apparatus of claim 29 wherein the means for inserting at least one bit insert 16 bits of the identification information into the identification field of the header for the IP datagram.

38. (Previously Presented) An apparatus for formatting an IP datagram having an IP header comprising:

means for determining a special value based on a secret shared with a destination node; and

means for inserting at least a part of the special value into identification information carried by the header for the IP datagram, wherein a first portion of the identification information is

included in an identification field and a second portion of the identification information is included in at least one other field of the header of the IP datagram; and

wherein the means for inserting inserts the part of the special value into the identification field of the header for the IP datagram.

39. (Original) The apparatus of claim 38 further comprising means for transmitting the IP datagram.

40. (Original) The apparatus of claim 38 wherein the means for determining the special value bases the determination on at least one element selected from the group consisting of source address information, destination address information and at least one bit from the identification field of the header for the IP datagram.

41. (Canceled)

42. (Previously Presented) The apparatus of claim 38 further comprising:
means for inserting at least another part of the special value into the at least one other field of the header for the IP datagram.

43. (Previously Presented) The apparatus of claim 38 wherein the part of the special value inserted into the identification field has a bit length less than 16 bits and the apparatus further comprises:

means for determining additional identification information associated with the header for the IP datagram; and

means for inserting at least part of the additional identification information into the identification field of the header for the IP datagram.

44. (Original) The apparatus of claim 43 further comprising:

means for inserting at least another part of the additional identification information into a field of the header for the IP datagram other than the identification field.

45-48. (Canceled)

49. (Previously presented) An apparatus for assembling IP datagrams each having an IP header comprising:

means for receiving a plurality of IP datagrams;

means for extracting identification information from each of the plurality of IP datagrams, the identification information for each IP datagram comprising 16 bits of an identification field of the header for that IP datagram and at least one bit from at least one other field of the header for that IP datagram, the at least one bit not including source address information, destination address information or protocol information for the IP datagram;

means for identifying a subset of the plurality of IP datagrams based on the identification information and at least one element selected from the group consisting of the source address information, the destination address information and the protocol information for each IP datagram from the subset;

means for assembling the subset of the plurality of IP datagrams into a message based on fragmentation offset information from a fragmentation offset field of the header for each IP datagram from the subset, and

wherein the at least one other field of the header for that IP datagram is selected from the group consisting of the sub-net subfield of at least one of the source address field and the destination address field of the header for that IP datagram, the protocol field of the header for that IP datagram, the protocol field of the header for that IP datagram and the fragmentation offset field of the header for that IP datagram.

50. (Canceled)

51. (Previously Presented) An apparatus for assembling IP datagrams each having an IP header comprising:

means for receiving a plurality of IP datagrams;

means for extracting identification information from each of the plurality of IP datagrams, the identification information for each IP datagram comprising 16 bits of an identification field of the header for that IP datagram and at least one bit from at least one other field of the header for that IP datagram, the at least one bit not including source address information, destination address information or protocol information for the IP datagram;

means for identifying a subset of the plurality of IP datagrams based on the identification information and at least one element selected from the group consisting of the source address information, the destination address information and the protocol information for each IP datagram from the subset, wherein the means for identifying further comprises:

means for determining a special value based on a secret shared with a source node; and

means for identifying at least one IP datagram from the plurality as part of the subset based on the at least one IP datagram's containing the special value as part of the identification information for the at least one IP datagram; and

means for assembling the subset of the plurality of IP datagrams into a message based on fragmentation offset information from a fragmentation offset field of the header for each IP datagram from the subset.

52. (Original) The apparatus of claim 51 wherein the means for determining additionally bases the determination on at least one element selected from the group consisting of the source address information, the destination address information and at least one bit from the identification field of the header for the at least one IP datagram.

53-55. (Canceled)

56. (Currently amended) A non-transitory machine-readable medium~~computer-readable medium that is capable of being operatively coupled to a computer and that is not embodied as a propagating signal or other form of energy~~, the medium having stored thereon instructions, which when executed by a processor, cause the processor to perform a method for formatting an IP datagram having an IP header comprising:

- a. determining identification information having a length greater than 16 bits associated with data to be sent in the IP datagram;
- b. inserting at least one bit of the identification information into an identification field of the header for the IP datagram;
- c. inserting the remaining bits of the identification information into at least one field of the header of the IP datagram other than the identification field; and
- d. transmitting the IP datagram.

57. (Canceled)

58. (Currently amended) The ~~computer-readable~~ medium of claim 56 wherein the step of inserting the remaining bits of the identification information is carried out by inserting at least one of the remaining bits into the sub-network sub-field of at least one of the source address field and the destination address field of the header for the IP datagram.

59. (Currently amended) The ~~computer-readable~~ medium of claim 58 wherein the method further comprises:

- d. inserting source address information for the IP datagram into the source address field of the header for the IP datagram;
- e. inserting destination address information for the IP datagram into the destination address field of the header for the IP datagram; and
- f. inserting protocol information for the IP datagram into the protocol field of the header for the IP datagram.

60. (Currently amended) The ~~computer-readable~~ medium of claim 56 wherein the step of inserting the remaining bits of the identification information is carried out by inserting at least one of the remaining bits into the protocol field of the header for the IP datagram.

61. (Currently amended) The ~~computer-readable~~ medium of claim 60 wherein the method further comprises:

- d. inserting source address information for the IP datagram into the source address field of the header for the IP datagram;
- e. inserting destination address information for the IP datagram into the destination address field of the header for the IP datagram; and
- f. inserting protocol information for the IP datagram into the protocol field of the header for the IP datagram.

62. (Currently amended) The ~~computer-readable~~ medium of claim 56 wherein the step of inserting the remaining bits of the identification information is carried out by inserting at least one of the remaining bits into the fragment offset field of the header for the IP datagram.

63. (Currently amended) The ~~computer-readable~~ medium of claim 62 wherein the method further comprises:

- d. inserting source address information for the IP datagram into the source address field of the header for the IP datagram;
- e. inserting destination address information for the IP datagram into the destination address field of the header for the IP datagram; and
- f. inserting protocol information for the IP datagram into the protocol field of the header for the IP datagram.

64. (Currently amended) The ~~computer-readable~~ medium of claim 56 wherein the step of inserting at least one bit is carried out by inserting 16 bits of the identification information into the identification field of the header for the IP datagram.

65. (Currently amended) A ~~non-transitory machine~~computer-readable medium that is capable of being operatively coupled to a computer ~~and that is not embodied as a propagating signal or other form of energy~~, the medium having stored thereon instructions, which when executed by a processor, cause the processor to perform a method for formatting an IP datagram having an IP header, the method comprising:

- a. determining a special value based on a secret shared with a destination node; and
- b. inserting at least a part of the special value into identification information carried by the header for the IP datagram, wherein a first portion of the identification information is included in an identification field and a second portion of the identification information is included in at least one other field of the header of the IP datagram, and wherein the inserting step is carried out by placing the part of the special value into the identification field of the header for the IP datagram.

66. (Currently amended) The ~~computer-readable~~medium of claim 65 wherein the method further comprises transmitting the IP datagram.

67. (Currently amended) The ~~computer-readable~~medium of claim 65 wherein in the determining step in the method the special value is additionally based on at least one element selected from the group consisting of source address information, destination address information and at least one bit from the identification field of the header for the IP datagram.

68. (Canceled)

69. (Currently amended) The ~~computer-readable~~medium of claim 65 wherein the method further comprises:

- c. inserting at least another part of the special value into the at least one other field of the header for the IP datagram.

70. (Currently amended) The ~~computer-readable~~ medium of claim 65 wherein the at least part of the special value inserted into the identification field has a bit length less than 16 bits and the method further comprises:

c. determining additional identification information associated with the header for the IP datagram; and

d. inserting at least part of the additional identification information into the identification field of the header for the IP datagram.

71. (Currently amended) The ~~computer-readable~~ medium of claim 70 wherein the method further comprises:

e. inserting at least another part of the additional identification information into a field of the header for the IP datagram other than the identification field.

72-75. (Canceled)

76. (Currently amended) A non-transitory machine~~computer-readable~~ medium that is capable of being operatively coupled to a computer ~~and that is not embodied as a propagating signal or other form of energy~~, the medium having stored thereon instructions, which when executed by a processor, cause the processor to perform a method for assembling IP datagrams, the method comprising:

a. receiving a plurality of IP datagrams;

b. extracting identification information from each of the plurality of IP datagrams, the identification information for each IP datagram comprising 16 bits of the identification field of the header for that IP datagram and at least one bit from at least one other field of the header for that IP datagram, the at least one bit not including source address information, destination address information or protocol information for the IP datagram, wherein the at least one other field of the header for that IP datagram is selected from the group consisting of the sub-net subfield of at least one of the source address field and the destination address field of the header for that IP datagram,

the protocol field of the header for that IP datagram and the fragmentation offset field of the header for that IP datagram;

c. identifying a subset of the plurality of IP datagrams based on the identification information and at least one element selected from the group consisting of the source address information, the destination address information and the protocol information for each IP datagram from the subset; and

d. assembling the subset of the plurality of IP datagrams into a message based on fragmentation offset information from the fragmentation offset field of the header for each IP datagram from the subset of the plurality of IP datagrams.

77. (Canceled)

78. (Currently amended) A non-transitory machine-readable computer-readable medium that is capable of being operatively coupled to a computer and that is not embodied as a propagating signal or other form of energy, the medium having stored thereon instructions, which when executed by a processor, cause the processor to perform a method for assembling IP datagrams, the method comprising:

a. receiving a plurality of IP datagrams;

b. extracting identification information from each of the plurality of IP datagrams, the identification information for each IP datagram comprising 16 bits of the identification field of the header for that IP datagram and at least one bit from at least one other field of the header for that IP datagram, the at least one bit not including source address information, destination address information or protocol information for the IP datagram;

c. identifying a subset of the plurality of IP datagrams based on the identification information and at least one element selected from the group consisting of the source address information, the destination address information and the protocol information for each IP datagram from the subset; and

d. assembling the subset of the plurality of IP datagrams into a message based on fragmentation offset information from the fragmentation offset field of the header for each IP

datagram from the subset of the plurality of IP datagrams, wherein the identifying step in the method comprises:

- e. determining a special value based on a secret shared with a source node; and
- f. identifying at least one IP datagram from the plurality as part of the subset based on the at least one IP datagram's containing the special value as part of the identification information for the at least one IP datagram.

79. (Currently amended) The ~~computer-readable~~ medium of claim 78 wherein in the determining step in the method the special value is additionally based on at least one element selected from the group consisting of the source address information, the destination address information and at least one bit from the identification field of the header for the at least one IP datagram.

80-84. (Canceled)